DOCUMENT RESUME

ED 343 189 CS 507 775

AUTHOR Pohl, Gayle M.
TITLE Anxiety and Message-Induced Persuasion: A Meta-analytical Approach.
PUB DATE Nov 91
NOTE 32p.; Paper presented at the Annual Meeting of the Speech Communication Association (77th, Atlanta, GA, October 31-November 3, 1991).
PUB TYPE Information Analyses (070) -- Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Anxiety; *Communication Research; Meta Analysis; *Persuasive Discourse; Research Needs
IDENTIFIERS Communication Strategies; *Persuasive Strategies

ABSTRACT

Using learning theory approaches and definitions of persuasion generated from learning theorists, a study examined the effects of anxiety on message-induced persuasion by using meta-analytic techniques to quantitatively assess the effect of anxiety manipulation in persuasive situations. Studies used in the meta-analysis were similar in context and intention in that they examined anxiety and persuasive communication, and they obtained a measure of the effects produced. The studies were subjected to combined testing procedures to calculate effect sizes and consequently, determine the statistical significance of the results across categories of studies. Two hypotheses were proposed and supported. The meta-analysis revealed that anxiety can increase the effect of persuasive messages and persuasive messages can alter the level of receiver anxiety. Results indicate an overall positive effect for the anxiety manipulations in persuasive situations. Anxiety was found to produce a small but consistent effect. An r=.19 level of generalizability across categories was found. Future research should include an increased use of meta-analytical procedures, increased use of anxiety as a persuasive effect, closer examination of control within subject variances, experimental environment effects, and interactions of different experimental messages, and an increased use of standardized variables. Two figures and 7 tables are included; a list of 91 references is attached. (Author/SG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED343189

ANXIETY AND MESSAGE-INDUCED PERSUASION: A META-ANALYTICAL APPROACH

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Gayle Pohl
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

CS507775

Gayle M. Pohl, Ph.D.
Assistant Professor
Department of Communication
Canisius College
Buffalo, New York 14208

BEST COPY AVAILABLE

Biographical Information

Gayle M. Pohl, Ph.D.
Assistant Professor
Department of Communication
Canisius College
Buffalo, New York 14208

Ph.D. received in 1987 from the University of Kentucky, Department of Communication.

Abstract

ANXIETY AND MESSAGE-INDUCED PERSUASION:

A META-ANALYTICAL APPROACH

This study examines the effects of anxiety on message-induced persuasion by using meta-analytic techniques to quantitatively assess the effect of anxiety manipulation in persuasive situations. Studies used in the meta-analysis were similar in context and intention in that they examined anxiety and persuasive communication, and they obtained a measure of the effects produced. The studies were subjected to combined testing procedures to calculate effect sizes and, consequently, determine the statistical significance of the results across categories of studies. Two hypotheses were proposed and supported. The meta-analysis revealed that anxiety can increase the effect of persuasive messages and persuasive messages can alter the level of receiver anxiety. Results indicate an overall positive effect for the anxiety manipulations in persuasive situations. Anxiety was found to produce a small but consistent effect. An $r = .19$ level of generalizability across categories was found. Recommendations for the future include an increased use of -analytical procedures, increased use of anxiety as a persuasive effect, closer examination of control within subject variances, experimental environment effects, and interactions of different experimental messages, and an increased use of standardized variables.

Researchers in communication have studied persuasive phenomena in many settings and from a variety of points of view. Specific research has focused on sources, language, content, strategies, and receivers. Research on receivers has examined gender, specific personality traits, and demographic factors. This paper will examine one such receiver characteristic, that of anxiety. Unlike other studies of anxiety, this paper will use meta-analytic methods.

Since persuasion has been defined in a variety of ways over the years, this paper will present an overview of learning theory approaches and definitions of persuasion generated from learning theorists, conceptualize anxiety and the role it plays in persuasion, illustrate the methodology used to calculate the appropriate meta-analytic statistics and present the results, and discuss the findings of this meta-analytical study and implications for future anxiety related studies.

Learning Theory Approaches to Persuasion

When viewing persuasion from a learning theory perspective, the degree to which such theoretical formulations explain the acquisition of new attitudes and behaviors and the degree to which attitudinal and behavioral change are governed by the same processes should be examined. Learning theories have been classified in a number of ways. Hill (1971) distinguished among three nonexclusive categories: stimulus-response (S-R) approaches, stochastic approaches, and cognitive approaches. East of these categories will be discussed with respect to their relationship to persuasion.

Stimulus-Response Approaches

Much of the persuasive research specifically in the area of classical conditioning has discussed how attitudes are acquired. Classical conditioning seems to be contingent upon how the individual's attitudes were formed (i.e., as a result of what specific experiences, learnings, etc.). Some S-R theorists expanded the basic framework of this approach to include concepts related to drive and drive reduction. Doob (1947) used learning psychology as a basic framework for attitude formation, defining as attitude as a nonobservable response that is the result of prior learning.

Thus, according to Doob, an attitude is an implicit response with a drive strength which occurs within an individual as a reaction to a stimulus and which affects subsequent overt responses. His claim that an implicit response is an anticipatory response provided a connection with learning theory. That is, an anticipatory response precedes another rewarded response and as a result of being associated with a specific reward, has been reinforced so that it occurs (before its original time) in the response series. Thus, the individual's response is based upon previous learning experience and, as such, the learning process is crucial to an understanding of the behavior resulting from specific attitudes.

In addition, Doob claimed that attitudes were evoked by a variety of stimulus patterns. The response from the individual ranges from a verbal response to an autonomic drive. The arousal of an attitude includes both perception and learning. Learning explains the specific bond between the stimulus pattern and the attitude. This learning which stems from past experiences affects the arousal of the individual by reminding the individual of previous behaviors and their results.

Attitudes, according to Doob, also, have a drive in the sense that the attitudes' tension is reduced through subsequent behavior leading to a reward. Individuals are also motivated to perform a specific behavior on the basis of socially significant values. The strength of that social drive and the level of arousal which is evoked by that drive are directly proportional to the individual's desire to adhere to socially significant values. Fishbein relied on the learning theory approach to describe the attitude-behavior relationship. His approach indicated that attitude formation could be a function of the strength of association between various beliefs and an attitude object plus the evaluations conditioned to those beliefs. The mechanisms for changing attitudes involve either changing the strength with which the beliefs are held, learning additional beliefs, changing evaluations associated with the object, or changing the evaluations associated with the beliefs.

Stochastic Approach

A second model of learning theory, as proposed by Hill (1971) is the stochastic approach. Estes (1980) developed a stochastic model that relies on the notion stimulus sampling. Estes argued that any response occurs in the presence of a multitude of stimuli. In any testing situation, all the stimuli sampled become conditioned to the response that occurs. If the individual is directed to the correct response, that knowledge alters the

probabilities of what stimuli will be sampled on the next trial. Through repeated trials, more stimuli become conditioned to the correct response so that the probability of the correct response is gradually strengthened.

Cognitive Approaches

A third approach to learning theory is the cognitive approach. Tolman (1932) saw cognitions as interviewing variables between stimuli and responses. He proposed that people develop a cognitive man of the world, learning where rewards are located and discovering alternative routes to arrive at the same reward. In order to understand behavior and persuade, Tolman believed one must understand the goals the person is seeking to achieve.

This process of understanding goals seems to highlight an important theoretical issue which has caused some differences of opinion among persuasion researchers. Some researchers (such as Smith, 1982) see persuasion as a purely cognitive process while others (e.g., Reardon, 1984) see it as a mediating process (i.e., as a cognitive and affective process).

In the cognitive view human beings are seen as information processors who seek understanding while also attempting to organize their cognitions efficiently (Rokeach, 1983). Individuals reorganize their cognitions on the basis of their desired goals. They organize their own personal knowledge according to their perception of achieving that goal. Beliefs are formed as a result of perceived knowledge; therefore, in order to achieve cognitive consistency, we must organize our cognitions. Rokeach (1973)felt that all beliefs and attitudes are hierarchically arranged to form a single, functional interconnected belief-attitude-value system.

Reardon (1984) states that cognitive processes include three basic steps. The first of these is the attention phase. To recognize and understand anything we must first pay attention to it. During this attention stage, we must also attach a significance to the things in order for the process to continue to the second phase of cognition which is the interpretation stage. Interpretation requires that memory be utilized to recall objects, people and events similar to the one which is being attended to, so that it can be comprehensible. Reardon (1984) stated that effective persuasion requires the ability to select information in a manner that encourages the persuader to change in some way. Mental schemes generated from past happenings allow people to interpret past, present, and future events. The final stage of cognition is storage. It is on the basis of mental schemes and

individual interpretations that individuals decide to retain or not retain information in their memories.

The mediating theorists see persuasion as a process starting with a specific message then proceeding to an internal mediation, which then produces a response.

Since the early 1970's some researchers have been debating the existence of and role of emotion in information processing and persuasion. Zajonc (1980) contended that emotion differs from cognition in that emotion is innate, effortless, subjectively valid, discloses the self, is difficult to verbalize and may be separate from content. Zajonc suggested that emotion can precede cognition and may predispose a person to respond positively, negatively, or neutrally to a person, object, or event.

Zajonc's view is contrary to previous thinking which placed emotion as dependent on cognition. Earlier, emotion was looked on a arousal with a cognitive label. For example, Schachter and Singer (1979) and Mandler (1975) felt that emotion was dependent upon cognition. Emotion is the product of cognitive interpretations and thus dependent on cognition. Averill (1980) saw emotion in a similar light. He defined emotion as social constructions and stated that emotions can only be understood on a social level of analysis.

Tucker (1981) suggested a new perspective. he believed that the two hemispheres of the brain work together to interpret experience. The right hemisphere controls the emotional interpretation of incoming information. Research (Weschler, 1973; Heilman, Scholes, & Watson, 1975; Tucker, Watson & Heilman, 1976; Ross & Mesulam, 1979) showed that right brain hemisphere damage impaired recall of emotional information and the ability to express emotion. In contrast, the left hemisphere seems very rational and unemotional. Tucker (1981) posited that the left hemisphere is not nonemotional, but it is organizationally structured to assume the role of a logical sequential and linear operant. He explained that the right hemisphere's form of conceptual organization seems to be congruent with its particular emotional functions, and the left hemisphere's cognitive functions seem to be relevant to that form of rationality that is not simply nonemotional but provides some control over emotionality.

Buck (1984) said that emotion can exist and influence behavior spontaneously or without cognitive intervention. Affect such as anger, surprise, happiness, fear, interest and disgust can ignite spontaneous and innate expressions. Affects can also couple themselves with cognitive analysis prior to influencing overt

behavior. This type of cognitive intervention, according to Tucker (1981), is primarily a left brain function. Buck (1984) suggested that emotion affects behavior with or without the influence of reasoning processes. Some emotions are not inspected prior to their influence on behavior while other emotions are thoroughly inspected by the left hemisphere. Those emotions not inspected are linked with reasoning to produce socially acceptable, context-relevant and personally consistent expressions.

Furthermore, he also stated that no cognition can exist without emotion. This perspective has important implications for persuasion which has been typically viewed as primarily a cognitive function. If persuasion was dictated in part by human emotions, then another look at the cognitive approach to learning theory is warranted.

Buck (1984) stated that cognition cannot and does not exist without emotion. Reardon (1984) claimed that this is especially true when referring to social cognition. Individuals will be socially rewarded or punished based upon their actions; therefore, the behavioral choice becomes an emotional choice as well. The persuader attempts to create environmental emotions which place the persuadee in a socially precarious position, where his/her actions or opinions are seen as inappropriate, inconsistent, or ineffective thereby leading the persuadee to feel uncomfortable. At this point in the persuasive process, the persuadee is offered a behavioral alternative with which s/he feels comfortable. Offering that behavioral alternative is actually the persuader's main objective. It should also be viewed by the persuadee as the most rewarding of the available options.

Reardon (1984) and buck (1984) also claimed persuasion is based on a cognitive reorganization which is dictated by our affective responses. Individuals hold certain beliefs because of their emotional attachment to a certain idea or person or object. The specific emotional attachment is a consequence of a particular message (and its social appropriateness, consistency, or effectiveness) indicated by the idea, concept, or person. Fear is one of these emotional attachments which can be message-generated.

Persuasion as an affective and cognitive process emphasizes that cognitions cannot and do not operate singularly. They are either preceded or accompanied by affects. The specific affect which this study deals with is anxiety and its persuasive effect on messages.

One aspect of affect which seems not to have been examined as carefully as others in research on persuasive messages is anxiety. Anxiety is experienced often in a person's daily life.

Speilberger (1972) defined anxiety as a term used to describe an unpleasant emotional state or condition which is characterized by subjective feelings and tensions, apprehension, and worry and by activation or arousal of the autonomic nervous system. Anxiety can be one of two varieties: state anxiety (A-state) or trait anxiety (A-trait). Generally, state anxiety arises from situational constraints while trait anxiety arises from predispositional characteristics (McCroskey & Beatty, 1984).

Elevations in state anxiety are experienced as unpleasant or painful, so an individual will engage in cognitive and behavioral operations or responses that serve to reduce or minimize this discomfort. The individual may first reappraise the stressful circumstances that initiated the anxiety process and thus reappraisal may help the individual to identify coping mechanisms for alleviating the stress. Or, the reappraisal may lead the individual to call upon avoidance behaviors that permit the individual to escape from the anxiety arousing circumstances. This sequence of events begins with an A-state reaction which produces a cognitive reappraisal which then produces coping or avoidance behaviors and/or psychological defenses (Spielberger, 1972, pp. 481-493).

Research findings (Spielberger, 1966) suggested that trait anxiety measures reflect anxiety-proneness--differences between individuals in the probability that anxiety states will be manifested under different circumstances involving varying degrees of stress. Thus, if a person has an elevated trait-anxiety level, s/he is generally more disposed to respond with state anxiety and is likely to experience anxiety more often than other people. It should be noted, however, that even though the person is more disposed to react with anxiety states than other people, the person may not be anxious now. The person's level of anxiety is dependent upon how dangerous or threatening the person perceives the present situation. The relationship between trait and state anxiety can be thought of as analogous in certain respects to the relationship between potential and kinetic energy. State anxiety, like kinetic energy, refers to a process now occurring in the present time. Trait anxiety, like potential energy, refers to a latent disposition for a reaction of a certain type or occur if it is triggered by appropriatebly stressful stimuli.

Anxiety is an emotional response to stimuli. The stimuli are first recognized by a person and then identified as belonging to a certain category. The stimuli is then ranked by the person as either important or unimportant. The identification of the

stimulus which needs attention is an ongoing process which makes it possible for individuals to attend to important messages and ignore those that are not salient (Donohew & Palmgreen, 1971).

Once a stimulus has been identified as needing attention, it is said to have the individual's attention (Weaver, 1972). At the center of the attention process is arousal, which provides the organism with energy to act (Kroeber-Reil, 1979). Once the arousal process is activated, the individual labels the perceived state and describes his/her feelings in terms of the available cognitions. The same arousal state could be labeled as fear or anxiety or otherwise, depending on the individual's definition of the situation (Schachter, 1964). An emotional process of identification begins with the discrimination of a state of autonomic excitation which leads to a search for an appropriate explanation through the arousal of an evaluative need (Schachter, 1959).

There have been many theoretical approaches to emotion. The ones focused upon in this study are the combined approach of Zillmann (21979) and Mehrabian (1971), Donohew, Palmgreem, and Duncan (1980) and Walters and Parke (1964) and Easterbrook 1959). Combining the Zillmann (1979) and Mehrabian (1971) approaches provides a much clearer view than does each individually. Zillmann's approach (1979) contained three aspects of emotion: dispositional, excitatory, and experiential. The dispositional factor is the response-guiding mechanism. The organism is seen as capable of displaying emotional motor reactions. The experiential component is described as the conscious experience of either the motor or excitatory reaction, or of both reactions. The excitatory component is described by Zillmann as "response-energizing mechanism" (p. 30). Zillmann's (1971) notion stated that "physiological arousal tends to determine the intensity of the emotion arrived at cognitively" (p. 421). Zillmann explained that the excitatory reactions, like the motor reactions of the dispositional factor, are either unconditional or acquired through learning. Zillmann saw the integration of these three components as responsible for emotional experience and behavior.

Mehrabian (1971) defined arousal in semantic space (i.e., use of words) in terms of alertness. He also defines emotion as a precognitive activity. In other words, emotion can precede cognition. However, using language to describe a persons overall emotional state is a conscious and verbal activity and not a precognitive one. Russell (1978) made a distinction between emotion and affect by claiming that affect was "emotion represented in language" (p. 1152). This indicated that Mehrabian's semantic measurements are useful in describing the emotional state, a state that would include the impact of past experiences because the emotion can be measured by the words used. Mehrabian postulated that three factors serve as bi-polar

dimensions with anchor points: pleasure-displeasure, arousal-nonarousal, and dominance-submission. These three dimensions can be used as a "description of specific emotional responses, can also be viewed as mediating the diverse behavioral approach-avoidance reactions to environments and can also be used to categorize environments" (Mehrabian & Russell, 1974, p.298). Consequently, dominance/submission, pleasure/displeasure, or arousal/nonarousal as anchor points can be seen to be at least partly a function of experience. Mehrabian's semantic measurements describe the individual's current emotions and, therefore, are helpful in identifying the individual's emotional state.

Zillmann's physiological measures differentiated between cortical and autotomic arousal and thus helped to further delineate emotions described and/or identified by Mehrabian's semantic measurements (Christ, 1985). Overall, Zillmann focuses on the components which precede emotional experience whereas Mehrabian focuses on the overall emotional response. By combining the semantic and physiological measurements, the emotional state of an individual can be described (Christ, 1985). Together these two theorists provide a framework for understanding how emotions are generated physiologically and perceived psychologically.

Donohew, Palmgreen, and Duncan (1980), on the other hand, suggested a two-stage activation theory of information exposure which seems to support Schachter's concept of autotomic excitation. Donohew, et. al. suggested that the basic premise of the arousal process starts with the assumption that individuals have an optimal level of arousal at which they feel comfortable. Individuals enter situations with the expectation of achieving or maintaining this optimal state of activation and will experience a positive or negative affect--a felling of pleasantness or unpleasantness-- depending on whether this optimal state is achieved or not. If arousal falls below or exceeds the desired level, individuals tend to experience a negative affective state and will turn away from the stimulus which led them to that state. If arousal level reaches or remains within some range perceived to be acceptable, the affective state will be more positive and individuals will continue to expose themselves to the stimulus. People tend to seek information which will help them reach reach and maintain an appropriate level of arousal.

Walters and Parke (1964) and Easterbrook (1959) both state that emotional arousal reduces the range of cue utilization. Whatever the arousal source, whether it is anticipation of injury, food deprivation, or perceived threat to the self, the consequences is a narrowing of focus upon the central cues in a situation to the exclusion of the peripheral or partially relevant cues. Whatever emotion is socially appropriate is the emotion which the

individual will most probably experience. So, if anxiety is the relevant affect, individuals will experience the emotion and perhaps lend themselves to a suggestion which will lead them to the reduction or elimination of that anxiety.

Overall, arousal is motivating, and anxiety is arousing. Anxiety can be seen as an emotion which can be used to make people vulnerable to persuasion when the persuasive message is appropriate, consistent, and effective.

A review of the literature on anxiety shows that very often the terms fear and anxiety are used synonymously. May (1950) suggested that anxiety is more diffuse than fear, occurs at an earlier age, and changes into fear when sources of the threat can be identified. Anxiety is experienced when the source of the threat is repressed. Epstein (1972) stated that the main distinction between fear and anxiety is that in fear the source of the threat is known and in anxiety it is unknown. When individuals experience anxiety, they are which produce low levels of emotional intensity and are thereby vulnerable to persuasion (Shimanoff, 1980). In sum, it appears that high level of fear influence an individual to reject the message and, consequently, the persuasion is not accomplished. Anxiety, on the other hand, operates at a lower level of emotional intensity than does fear, so anxiety can often facilitate persuasion (Reardon, 1984).

Anxiety often produces arousal and then activates individuals to interpret the perceived situation at hand and describe their feelings in terms of the cognitions available to them at the time. Bruner (1958) maintained that the lack of appropriate , meaningful stimuli categorization leads individuals to experience anxiety. This anxiety can then arouse the individual to search for an appropriate, cognitive categorization of stimuli. This arousal can, in turn, lead an individual to be persuaded if the message clearly shows the individual how categorization can be achieved. Arousal starts with the underlying premise that individuals have optimal level of arousal at which they feel comfortable. According to Donohew and Palmgreen (1971), individuals enter a situation expecting to reach a certain level of arousal If they do not reach that level of expected arousal, they turn away. It seems logical to conclude then that if the expected level of arousal is not reached, persuasion will not occur, but if the level is reached or exceeded, then persuasion is possible. If anxiety can produce arousal, it seems obvious that if the appropriate level of anxiety arousal is reached or exceeded in the message, the chance of persuasion effects increases. From an affective approach, persuasion will result when the anxiety of individual persuadees reaches or exceeds their expected and/or optimal level of arousal. Overall, it is reasonable to assume that anxiety does play a positive role in persuasion. Therefore, it is possible to hypothesize regarding the effect of anxiety in the persuasive process.

Hypotheses

Research findings indicate that anxiety stimulates some type of arousal. It has been found that high A-State people condition faster and are more persuadable than low A-State people. It has also been found that high A-State people learn more quickly (Spence, 1956). This learning process may be related to drive in that once learning has taken place an individual may be motivated or driven to reduce and/or eliminate the anxiety; so if learning provides an explanation for persuasive message effect, then anxiety helps create reinforcement of that effect. Anxiety is therefore related to motivation.

Communicators need to know the arousing or motivating effects of state and trait anxiety in order to construct persuasive messages. Persuasive messages need to be designed in accordance with target audiences and situations in order to motivate people to respond in an optimal manner. Therefore, the following hypotheses guided the research in this study.

H1: Anxiety increases the effect of persuasives messages.

H1a: State anxiety increases the effect of persuasive messages.

H1b: Trait anxiety increases the effect of persuasive messages.

H2: Persuasive messages may alter the anxiety level of the receivers.

The meta-analysis was designed to address two additional questions identifying whether research tended to conceptualize state and trait anxiety as dependent or independent variables. The research questions asked were:

1.) Do the studies which use anxiety as an independent variable use state anxiety tests to measure the subjects' level of anxiety?

2.) Do the studies which use anxiety as a dependent variable use trait anxiety tests to measure the subjects' level of anxiety?

It seems possible that when anxiety is used as a dependent variable (i.e., when the message produces anxiety), measures examining the relationship between the level of anxiety the person is experiencing and the basic personality and temperament of the person (i.e., trait anxiety) could be useful. It also seems possible that when anxiety is used as an independent variable (i.e., state anxiety) could be useful. Studies using anxiety as either an independent or dependent variable will be analyzed by meta-analytical methods to determine the overall effect anxiety play is persuasive messages.

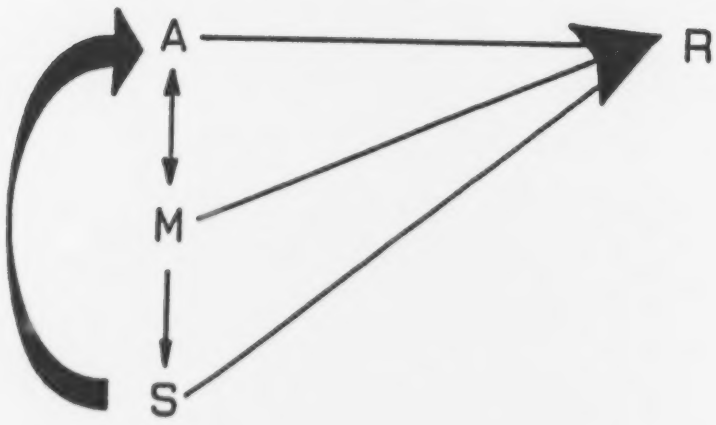
Methodology and Results

Communication researchers are becoming more interested in meta-analysis. Franklin Boster and Petere Mongeau (1985) conducted a meta-analytical study of the effects of fear-arousing material in a persuasive message. They stated that : "As the number of studies on a topic increases the difficulty in integrating the results of the studies increases. providing an accurate summary of literature requires a method of combining the results of independent studies on a topic" (p. 501). Meta-analysis is one method that accomplishes this goal.

The purpose of this study was to conduct a meta-analysis of previous studies of the effects of anxiety on persuasive messages and attitude change. The data for this study included correlations among anxiety manipulations, perceived anxiety, attitudes and behavior. In published studies of anxiety researchers have looked primarily at the four variables: anxiety, message, situation, and response. In some studies anxiety is treated as the independent variable, while in others, it is treated as the dependent variable. Two models will illustrate the possible relationships resulting from anxiety as a dependent variable and as an independent variable. These models are helpful in determining how anxiety was measured in the individual studies used and, consequently, explain the relationships formed between anxiety and other variables in the various studies.

Model-I (independent variable model) (see Figure 1) illustrates the possible relationships resulting from the interaction between anxiety and communication where anxiety is treated as an independent variable, i.e., when anxiety affects or causes the communication. This relationship will be labeled as one which is affectively-mediated. Seven possible relationships as a result of anxiety affecting or causing communication are identified: a.) A-R describes the relationship when anxiety produces a response, b.) M-R describes the relationship when a message produces a response,

Model-I



KEY

A=anxiety

M=message

S=situation

R=response

A-R = A producing R

M-R = M producing R

S-R = S producing R

S-A-R = S producing A producing R

A-M-R = A producing M producing R

M-A-R = M producing A producing R

M-A-S = M producing A producing S

Figure 1: Independent Variable Model of Anxiety

c.) S-R describes the relationship when a situation produces a response, d.) S-A-R describes the relationship when a situation produces anxiety which then produces a response, e.) A-M-R describes the relationship when anxiety produces a message which then produces a response, f.) M-A-R describes the relationship when a message produces anxiety which then produces a response, and g.) M-S-R describes the relationship when a message produces a situation which then produces a response.

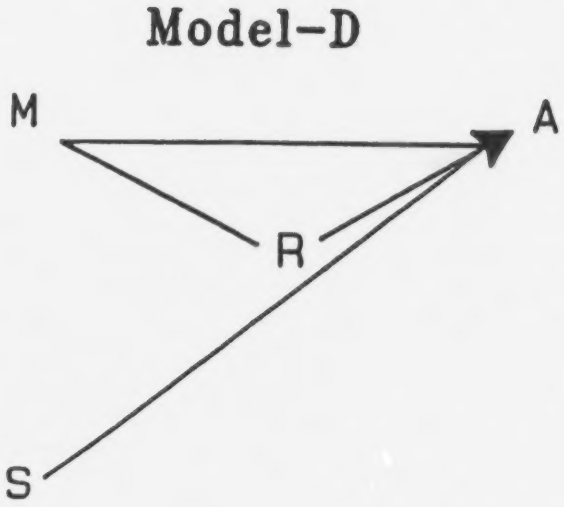
Model-D (dependent variable model) (Figure 2) illustrates the possible relationships between communication and anxiety where anxiety is the dependent variable. Three possible relationships as a result of the communication causing or effecting anxiety were identified: a.) M-A describes the relationship when a message produces anxiety, b.) M-R-A describes the relationship when a message produces a response which then produces, c.) S-A describes the relationship when a situation produces anxiety.

The Data:

The articles used in this study were obtained by inspecting reference lists from articles in which anxiety was part of the appeal (e.g., Watson, Pettingale, & Goldstein, 1983; Auerbach, Kendall, Cutter, & Levitt, 1976). Any relevant article to the topic was reviewed and the reference list was searched for additional citations. The Guide to Periodical Literature, the Social Sciences Indexes, and Psychological Abstracts were also searched for relevant literature. The literature search was restricted to those studies published in journals since 1930.

Criteria for Inclusion:

Four criteria were used to determine if a study was pertinent to this meta-analysis. First, the study had to include data that had not been published previously. Consequently, review articles and reanalyses were eliminated. Secondly, the persuasive message(s) had to include an anxiety manipulation relevant to the topic of the message. Studies looking at the effects of irrelevant anxiety and the effects of fear appeal strategies were excluded. Thirdly, one or more of three dependent variables had to be measured in the study.) perceived anxiety, b.) persuasive communication, and c.) response. Fourth, the study had to provide sufficient information to allow the computation of the statistic (resulting from one of the three combined procedures) between anxiety manipulation and at least one of the pertinent variables discussed.



M-A = M producing A

M-R-A = M producing R

S-A = S producing A

Figure 2: Dependent Variable Model of Anxiety

Fisher, Winer, or Stouffer Combined tests was used to calculate an appropriate effect size. These tests employ similar measurement tools across the different samples of subjects which enhances the validity of the findings as well as mitigating the "apples and oranges" problem of combining different studies. Combined tests and measures of effect size can be applied to databases collected at multiple occasions or from different samples. The calculated effect sizes are listed in Tables 1-7.

The six-model relationships that were analyzed produced average effect sizes of .19, .18, .39,.11,.13, and .13, respectively. The overall average effect size for the study was .19, which is a small effect size (Cohen, 1983). None of the model-relationships produced a medium or large effect size. The consistency of a resulting positive effect indicates a degree of generalizability across categories (See Table 7). This effect show that anxiety can be a consistent, persuasive effect.

Discussion

The hypotheses proposed were supported. The meta-analysis revealed that anxiety can increase the effect of persuasive messages and anxiety. The results of the analysis showed a consistent effect in the use of anxiety as a persuasive effect.

A .19 level of generalizability across categories is apparent from the resulting positive effect sizes. The effect sizes are small, so anxiety can not be considered the most important subject effect, but it can be seen as a consistent effect. Each study and each category of studies revealed an effect size rather than a lack therefore. The effect sizes for the individual studies ranged from a small effect of .03 to a large effect of .89. Obviously, with a small overall effect size of .19, the average size for individual studies was small. Although a larger effect size would make a more dramatic and more pronounced case for generalizability across categories, the consistency of positive effects found in each study and each category of studies and the positive overall effect is encouraging. The data indicate that anxiety generalizes strongly across categories.

A research question concerning the relationship between the independent and dependent variables and state and trait anxiety was posed along with the hypotheses. The studies which used anxiety as an independent variable used state anxiety tests to measure the subjects' level of anxiety, while the studies using anxiety as a dependent variable used trait anxiety tests to measure the subjects' level of anxiety. Three studies (Janis,

Table 2
Dependent Model Examining Relationships Between Message, Response, and Anxiety Varaibles: Effect Sizes

Study	N	Statistical Test	Effect Size
Hountras & Scharf	60	χ^2 = 9.21	.15
Powell & Miller	180	χ^2 = 13.82	.89
Watson, Pettingale & Goldstein	20	Z = 1.80	.16
Beck & Lund	80	χ^2 = 9.21	.13
Lehman	150	χ^2 = 7.38	.05
Powell	27	Z = 2.19	.17
Zolik & Wesland	27	χ^2 = 9.21	.23
Auerbach, Kendall Cutter, & Levitt	53	χ^2 = 5.99	.10
Auerbach, Martelli & Mercuri	33	χ^2 = 9.21	.23
Meichenbaum	21	χ^2 = 7.82	.16
Smith	140	χ^2 = 9.21	.08
Marton, Fransson, Jonsson, Klennell & Roos	136	χ^2 = 9.48	.07
Sarason	77	χ^2 = 5.99	.04
Abrams & Wilson	29	χ^2 = 13.82	.49
Glad & Adesso	129	χ^2 = 13.82	.11
Keane & Lisman	30	χ^2 = 11.18	.09
Lawson & Stagner	20	Z_c = 1.42	.19
Meichenbaum, Gilmore, & Fedoravicius	47	χ^2 = 9.21	.09
Pillar, Atkinson, & Fisher	62	χ^2 = 2.77	.03
Average Effect Size for D-M-R-A			.18

Table 3

Dependent Model Examining Relationships Between Situation and Anxiety: Effect Sizes

Study	N	Statistical Test	Effect Size
Epstein, Woolfolk, & Lehrer	19	χ^2 = 12.43	.69
Zeedyk-Ryan & Smith	84	χ^2_b = 12.43	.09
Average Effect Size for D-S-A			.39

Table 4

Independent Model Examining Relationships Between Situation, Anxiety and Response: Effect Sizes

Study	N	Statistcal Test	Effect Size
Higgins & Marlatt	37	χ^2 = 4.61	.13
Paz & Amir	91	$\underline{Z_a}$ = 2.09	.09
Average Effect Size: I-S-A$_b$-R			.11

Table 5

Independent Model Examining Relationships Between Anxiety, Message, and Response: Effect Sizes

Study	N	Statistical Test	Effect Size
Gollor & Dittes	166	$Z_r = 2.21$	.03
Millman	38	$\chi^2 = 7.82$	.17
Ribordy, Holmes, Buchsbaum	119	$\chi^2 = 13.82$	.15
Janis	54	$\chi^2 = 1.83$	.37
Auerbach & Kendall	60	$\chi^2 = 11.38$	.19
Robbins	83	$\chi^2 = 6.35$	.08
Moltz & Thistlewaite	7	$\chi^2 = 7.4$	.05
Plax, Bodaken, & Sereno	38	$Z_r = 1.64$	.07
Sarason	88	$\chi^2 = 9.21$	.10
Average Effect Size for I-A-M-R			.13

Table 6

Independent Model Examining Relationships Between Message, Anxiety, and Response Variables: Effect Sizes

Study	N	Statistical Test	Effect Size
Sears	45	χ^2 = 5.99	.10
Wheatley	31	χ^2 = 5.99	.00
Wheatley & Oshikawa		NA	.12
Auerbach & Kendall	60	χ^2 = 11.38	.19
Auerbach	50	χ^2 = 10.60	.10
Moltz & Thistlewaite	7	χ^2 = 7.4	.05
Plax, Bodaken, & Sereno	38	Z_c = 5.35	.45
Firestone, Kaplan, Russell	119	χ^2 = 7.20	.06
Higgins & Marlatt	37	χ^2 = 4.61	.13
Paz & Amir	91	Z_c = 2.96	.09
Average Effect Size for I-M-A-R			.13

Table 7

Overall Average Effect Size

Model-Relationship	Average Effect Size
D-M-A	.19
D-M-R-A	.18
D-S-A	.39
AVERAGE EFFECT SIZE for D	.25
I-S-A-R	.11
I-A-M-R	.13
I-M-A-R	.13
AVERAGE EFFECT SIZE for I	.12
Overall Average Effect	.19

1955; Sarason, 1957; and Paz and Amir, 1974) used different types of state and trait tests together. All three of these studies focused on the state anxiety reactions in the results, but each measured the trait anxiety reactions to determine if any significant level of anxiety came into play. In each of the three studies, the trait anxiety was found to be insignificant.

The results of this study suggest some implications for future research. First, greater generalizability across categories will lend more credence to individual results of studies and assist in determining the influence of situational, context, language, message, topic, and other persuasive effects identified. Standardization of variables, the controlling for within subject variances, environmental effects and message interactions, and the increased use of meta-analytical procedures can alter the focus of research. Future research which deals with anxiety manipulation and message construction could bring persuasion theorists one step closer to the ultimate goal of constructing an effective persuasive message.

REFERENCES

Abrams, D. & Wilson, G. T. (1979). Effects of alcohol on social anxiety in Women: Cognitive vs. physiological processes. Journal of Abnormal Psychology, 8, 2, 161-173.

Auerbach, S. (1973). Effects of orienting instructions, feedback-information, and trait-anxiety level on state-anxiety. Psychological Reports, 33, 779-786.

Auerbach, S. M. & Kendall, P. C. (1978). Sex differences in anxiety response and adjustment to dental surgery: Effects of general vs. specific preoperative information. Journal of Clinical Psychology, 34, 2, 309-313.

Auerbach, S. M., Kendall, P. C., Cuttler, H. F., & Levitt, N. R. (1976). Anxiety, locus of control, type of preparatory information and adjustment to dental surgery. Journal of Clinical Psychology, 44, 809-818.

Auerbach, S. M., Martelli, M., & Mercuri, L. (1983). Anxiety, information, interpersonal impacts and adjustment to a stressful health care situation. Journal of Personality and Social Psychology, 44, 6, 1284-1296.

Averill, J. (1980). A contructivist view of emotion. Emotion: Theory, research, and experience. New York: Academic Press, 305-339.

Beck, K. & Lund, A. (1981). The effects of health threat seriousness and personal efficacy upon intentions and behavior. Journal of Applied Social SPsychology, 11, 5, 401-415.

Boster, F. & Mongeau, P. (1984). The effect of fear-arousing persuasive messages on prescribed fear, attitudes, and behavior. In R. Bostrom (Ed.) Communication yearbook 8. New Brunswick, New Jersey. ICA-Transaction Press, 486-535.

Bruner, J. S. (1958). Social psychology and perception. In E. Maccoby, T.M. Newcomb, & E. L. Hartley (Eds.). Readings in social psychology (3rd ed.). New York: Holt.

Bryant, J., Caraveth, R., & Brown, D. (1981). Television viewing and anxiety: An experimental examiniation. Journal of Communication, 31, 1, 106-119.

Buck, R. (1984). The communication of emotion. New York: Guilfod

Christ, W. G. (1985). The construct of arousal in communication research. Human Communication Research, 11, 4, 575-592.

Cohen, J. (1977). Statistical power analysis for the behavioral science. New York: Academic Press.

Donohew, R. L., Palmgreen, P. & Duncan, J. (1980). An activation model of information exposure. Communication Monographs, 47, 295-303.

Donohew, R.L., & Palmgreen, P. (1971). A reappraisal of dissonance and the selective exposure hypothesis. Journal Quarterly, 48, 412-420, 437.

Doob, L. (1947). The behavior of attitudes. Psychological Review, 54, 135-156.

Easterbrook, J. A. (1959). The effect of emotion on cue utilization and the organization of behavior. Psychological Review, 666, 183-201.

Epstein, Y., Woolfolk, R., & Lehrer, P. (1981). Physiological, cognitive, and nonverbal responses to repeated exposure to overcrowding. Journal of Applied Social Psychology, 11, 1, 1-13.

Estes, W. K. (1950). Toward a statistical theory of learning. Psychological Review, 57, 94-107.

Firestone, I.J., Kaplan, K.J., & Russell, J.C. (1973). Anxiety, fear, affiliation with similar-state versus dissimilar-state others: Misery sometimes loves nonmiserable company. Journal of Personality and Social Psychology, 26, 409-414.

Fishbein, M. (1973). The prediction of behaviors from attitudinal variables. In C.D. Mortensen & K.K. Sereno (Eds.). Advances in communication research. New York: Harper & Row, p. 3-31.

Fisher, R.A. (1948). Combining independent tests of significance. American Statistician, 2, 5, 30.

Glad, W. & Adesso, V. (1979). The relative importance of socially induced tension and behavioral contagion for smoking behavior. Journal of Abnormal Psychology, 85, 1, 119-121.

Gollor, H. & Dittes, J. (1965). Effects of manipulated self-esteen on persuasibility depending on threat and complexity of communication. Journal of Personality and Social Psychology, 2, 2, 195-201.

Higgins, R. & Marlatt, G.A. (1973). Effects of anxiety arousal on the consumption of alcohol by alcoholics and social drinkers. Journal of Consulting and Clinical Psychology, 41, 3, 426-433.

Hill, W.F. (1971). Learning: A survey of psychological interpretations (Rev. ed.). Scranton: Chandler Publishing.

Hountras, P. & Scharf, M. (1970). Manifest Anxiety and locus of control of low-achieving college males. The Journal of Psychology, 4, 950-100.

Janis, I. (1955). Anxiety indices related to susceptibility to persuasion. Journal of Abnormal and Social Psychology, 51, 663-667.

Janis, I. L. (1954). Personality correlates to susceptibility to persuasion. Journal of Personality, 22, 504-518.

Keane, T. & Lisman, S. (1980). Alcohol and society anxiety in males: Behavioral, cognitive and physiological effects. Journal of Abnormal Psychology, 89, 2, 213-223.

Kroeber-Reil, W. (1969). Activation research: Psychological approaches to consumer research. Consumer Research, 5, 1240-1250.

Lawson, E. & Stagner, R. (1957). Group pressure, attitude change and autonomic involvement. The Journal of Social Psychology, 45, 299-312.

Lehmann, S. (1970). Personality and Compliance: A study of anxiety and self-esteem in opinion and behavior change. Journal of Personality and Social Psychology, 15, 76-86.

Mandler, G. (1975). Mind and emotion. New York: Wiley.

May, G. (1950). The meaning of anxiety. New York: Ronald Press.

Marton, F. Fransson, A., Jonsson, B., Klennel, A.C., & Roos, B. (1973). Differential effects of stress inducing instructions on anxiety, learning and performance. Scandinavian Journal of Psychology, 14, 213-219.

McCroskey, J. & Beatty, M. (1984). Communication apprehension and accumulated communication state anxiety experiences: A research note. Communication Monographs, 51, 1, 79-84.

Mehrabian, A. & Russell, J.A. (1974). An approach to environmental psychology. Cambridge: MIT Press.

Mehrabian, A...(1971). Silent messages. Belmont, California: Wadsworth.

Meichenbaum, D.H. (1972). Cognitive modificaiton of test anxious college students. Journal of Consulting and Clinical Psychology, 39, 370-380.

Meichenbaum, D.M., Gilmore, J., & Fedoravicious, A. (1971). Group insight versus group desensitization in treating speech anxiety. Journal of Consulting and Clinical Psychology, 36, 410-421.

Millman, S. (1968). Anxiety comprehension, and susceptibility to social influence. Journal of Personality and Social Psychology, 9, 251-256.

Moltz, H. & Thistlewaite, D.I. (1955). Attitude modification and anxiety reduction. Journal of Abnormal and Social Psychology, 50, 231-237.

Paz, R. & Amir, &. (1974). Affiliative behavior of approach-and-avoidance-motivated subjects in fear and anxiety situations. European Journal of Social Psychology, 4, 3, 329-342.

Pillard, R., Atkinson, K.W., & Fisher, S. (1967). The effect of different preparations on film-induced anxiety. The Psychological Record, 17, 35-41.

Plax, T.G., Bodaken, E.M. & Sereno, K.K. (1977). Anxiety-arousing messages and ego-involvement as determinants of communicative predispositions. Human Communication Research, 3, 4, 335-343.

Powell, F.A. (1965). The effects of anxiety arousing messages when related to personal, familial, and impersonal referents. Speech Monographs, 32, 102-106.

Powell, F.A. & Miller, G.R. (1967). Social approval and dis-approval cues in anxiety-arousing communication Speech Monographs, 34, 152-159.

Reardon, K. (1984). Reason and emotion in persuasion. Paper presented at the Central States Communication Association Convention o

Ribordy, S.C., Holmes, D.S., & Buchsbaum, H.K. (1980). Effects of affective and cognitive distractions on anxiety reduction. The Journal of Social Psychology, 112, 121-127.

Robbins, P. (1963). Level of anxiety, interference proneness, and defensive reactions to fear-arousing information. Journal of Personality, 31, 163-178.

Rokeach, M. (1983). The nature of human values. New York: Free Press.

Ross, E. D., & Mesulam, M. M. (1979). Dominant language functions of the right hemisphere: Prosody and emotional gesturing. Archives of Neurology, 36, 144-148.

Russell, J. A. (1978). Evidence of convergent validity on the dimensions of affect. Journal of Personality and Social Psychology, 36, 1150-1168.

Sarason, I. (1957). Effect of anxiety and two kinds of motivating instructions on verbal learning. Journal of Abnormal and Social Psychology, 54, 166-171..

Sarason, I. G. (1951). The effects of anxiety and threat on the solution of a difficult task. Journal of Abnormal and Social Psychology, 62, 1, 165-168.

Schachter, S. (1959). The psychology of affiliation: Experimental studies of the sources of gregariousness. Stanford: Stanford University Press. pp. 138-173.

Schachter, S. & Singer, J. E. (1979). Comments on the Meslach Marshall-Zimbardo experiments. Journal of Personality and Social Psychology, 37, 989-995.

Sears, D. (1967). Social anxiety, opinion structure, and opinion change. Journal of Personality and Social Psychology, 7, 142-151.

Smith, E. K. (1976). Effect of the double-bind communication on the anxiety level of normals. Journal of Abnormal Psychology, 1, 85, 4, 356-363.

Smith, M. J. (1982). Persuasion and human action. Belmont, California: Wadsworth Publishing Co.

Speilberger, C. (1972). Anxiety: Current trends in theory and research. New York: Academic Press.

Speilberger, C. (Ed.) (1966). Anxiety and behavior. New York: Academic Press.

Spence, K. W. (1956). Behavior theory and conditioning.New Haven: Yale University Press.

Rokeach, M. (1983). The nature of human values. New York: Free Press.

Ross, E. D., & Mesulam, M. M. (1979). Dominant language functions of the right hemisphere: Prosody and emotional gesturing. Archives of Neurology, 36, 144-148.

Russell, J. A. (1978). Evidence of convergent validity on the dimensions of affect. Journal of Personality and Social Psychology, 36, 1150-1168.

Sarason, I. (1957). Effect of anxiety and two kinds of motivating instructions on verbal learning. Journal of Abnormal and Social Psychology, 54, 166-171..

Sarason, I. G. (1951). The effects of anxiety and threat on the solution of a difficult task. Journal of Abnormal and Social Psychology, 62, 1, 165-168.

Schachter, S. (1959). The psychology of affiliation: Experimental studies of the sources of gregariousness. Stanford: Stanford University Press. pp. 138-173.

Schachter, S. & Singer, J. E. (1979). Comments on the Meslach Marshall-Zimbardo experiments. Journal of Personality and Social Psychology, 37, 989-995.

Sears, D. (1967). Social anxiety, opinion structure, and opinion change. Journal of Personality and Social Psychology, 7, 142-151.

Smith, E. K. (1976). Effect of the double-bind communication on the anxiety level of normals. Journal of Abnormal Psychology, 1, 85, 4, 356-363.

Smith, M. J. (1982). Persuasion and human action. Belmont, California: Wadsworth Publishing Co.

Speilberger, C. (1972). Anxiety: Current trends in theory and research. New York: Academic Press.

Speilberger, C. (Ed.) (1966). Anxiety and behavior. New York: Academic Press.

Spence, K. W. (1956). Behavior theory and conditioning.New Haven: Yale University Press.

Tolman, E. C. (1932). Purposive behavior in animals and men. New York: D. Appleton-Century.

Tucker, D. M. (1981). Lateral brain function, emotion, and

conceptualization. Psychological Bulletin, 89, 19-46.

Tucker, D. M., Watson, R. G. & Heilman, K. M. (1976). Affective discriminated and evocation in patients with right partial disease. Neurology, 26, 354.

Watson, M., Pettingale, K. W., & Goldstein, D. (1983). Effects of a fear appeal on arousal, self-reported anxiety, and anxiety towards smoking. Psychological Reports, 52, 139-146.

Weaver, H. C. (1972). Human listening: Process and behavior. Indianapolis, Indiana: Bobbs-Merrill.

Weschler, A. p. (1973). The effects of organic brain disease on recall of emotionally charged versus neutral narrative text. Neurology, 23, 130-135.

Wheatley, J. (1971). Marketing and the use of fear or anxiety-arousing appeals. Journal of Marketing, 2, 35, 62-64.

Wheatley, J. J. & Oshikawa, S. (1970). The relationship between anxiety and positive and negative advertising appeals. Journal of Marketing Research, 7, 85-89.

Winer, B. J. (1971). Statistical principals in experimental design (2nd ed.) New York: McGraw-Hill.

Wolff, F. (1986). Meta-Analysis: Quantitative methods for research synthesis. Beverly Hills: Sage.

Zajonc, R. B. (1980). Feeling and thinking: Preference need no inferences. American Psychologist, 35, 151-175.

Zeedyk-Ryan, J. & Smith, G. F. (1983). The effects of crowding on hostility, anxiety, and desire for social interaction. The Journal of Social Psychology, 120, 245-252.

Zillmann, D. (1971). Excitation transfer in communication-mediated aggressive behavior. Journal of Experimental Social Psychology, 7, 419-434.

Zolik, E. & Wesland, E. (1963). Changes in parental attitudes as a function of anxiety and authoritarianism. The Journal of Social Psychology, 60, 293-300.